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United States Department of Agriculture

Soil Conservation Service

Ohio

Clinton Soil and Water Conservation District Resources Inventory

A 57.38/2:

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INTRODUCTION

In 1982, the Clinton Soil and Water Conservation District (SWCD), in cooperation with the USDA, Soil Conservation Service (SCS) took part in the National Resources Inventory (NRI). Information was collected on over 200 sample units to provide county reliable resource data.

This inventory provided natural resource data on (1) land use, (2) conservation treatment needs, (3) prime farmland, (4) potential cropland, (5) sheet and rill erosion, (6) flood prone areas, (7) wetlands, and (8) small bodies of water.

The study identifies erosion and land management problems in Clinton County. These problems were addressed and priorities set in the District's long-range program. Top priorities include:

1. Soil Resource Conservation

2. Water Quality

3. Drainage

This publication distributes the results of the Clinton County Resources Inventory. The publication describes the soil resource base and highlights some problems that could reduce future soil productivity. Along with reduced production, off site damages could be expected. A primary objective of the Clinton SWCD is to promote the wise use of the soil resource base in Clinton County.

The information in this publication, like all information developed from a statistical study, has varying degrees of reliability or confidence levels. All values expressed here, representing over 10 percent of the county area, have a confidence level greater than 90 percent or they are at least 90 percent accurate. Smaller values, those representing less than 10 percent of the total county area, will be less than 90 percent accurate.

September 1985

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Land Use

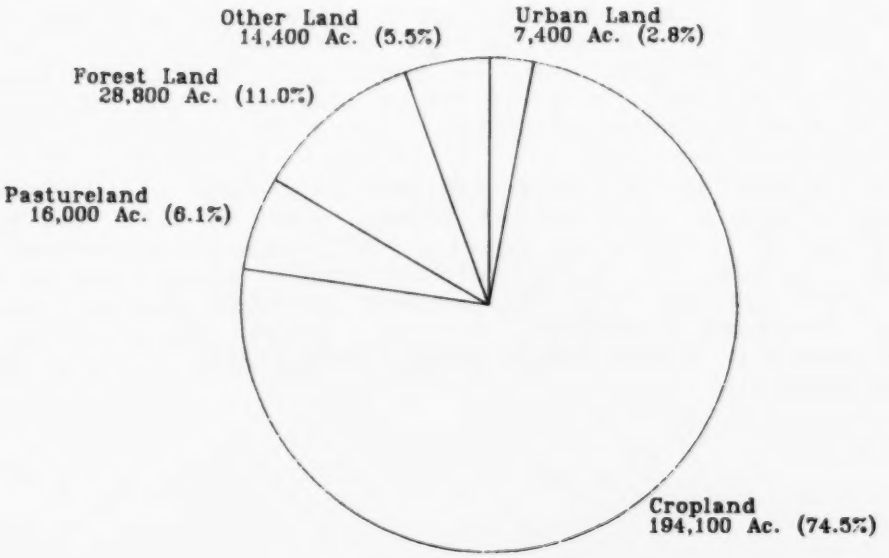
Land area measurements were made for Clinton County during the 1980 Census by the U.S. Department of Commerce.

Table 1. Clinton County Area Measurements

Nonfederal Land and Small Bodies of Water	260,700
Federal Land	2,100
Census Water (Large Bodies of Water)	1,200
Total Surface Area	264,000

This report addresses only nonfederal land.

Figure 1. Clinton County Land Use



TOTAL NONFEDERAL LAND ACREAGE IN CLINTON COUNTY = 260,700 ACRES

KEY POINT:

- Cropland is the largest land use in the county.

Land Use by Capability Class

Soils can be classified in a number of ways. SCS uses a land capability classification system that groups soils on the basis of their ability to produce common cultivated crops and pasture plants without deterioration. Land capability classes and subclasses in Clinton County are based on the soil survey.

Capability classes are designated by Roman numerals I through VIII. The numerals indicate progressively greater limitations and narrower choices for practical use. The classes are defined as follows:

Class I soils have few limitations that restrict their use.

Class II soils have moderate limitations that reduce the choice of agricultural use.

Class III soils have severe limitations that reduce the choice of agricultural use.

Class IV soils have very severe limitations that reduce the choice of plants, or that require very careful management, or both.

Class V soils are not likely to erode but have other limitations.

Class VI soils have severe limitations that make them generally unsuitable for cultivation.

Class VII soils have very severe limitations that make them unsuitable for cultivation.

Class VIII soils and miscellaneous areas have limitations that nearly preclude their use for commercial crop production.

Each capability class except Class I has subclasses to identify specific limitations. The letter "e" stands for erosion risk; "w" for wetness; and "s" for soils limited mainly because they are shallow, droughty, or stony.

Table 2. Rural Land Use Acreage by Capability Class

CLASS	CROPLAND	PASTURELAND	FOREST LAND	OTHER LAND Rural	TOTAL
	----------ACRES----------				
I	2,400	400	400	400	3,600
II	158,200	11,100	13,100	4,600	187,000
III	30,600	1,900	5,300	0	37,800
IV	1,900	1,800	2,900	0	6,600
V	0	0	1,600	0	1,600
VI	1,000	800	3,200	0	5,000
VII	0	0	2,300	800	3,100
NA	0	0	0	1,900	1,900
TOTAL	194,100	16,000	28,800	7,700	246,600

KEY POINTS:

- o Ninety-seven percent of all cropland is on Classes II and III.
- o Seventy-seven percent of all land in Clinton County is cropland in Classes II and III.
- o The majority of Classes VI and VII is in forest land.

Prime Farmland

Prime farmland is one of several kinds of important farmlands defined by the U.S. Department of Agriculture. It is of major importance in providing the Nation's short and long range needs for food and fiber. Prime farmland soils are defined as the soils that are best suited to producing food, fiber, forage, feed, and oilseed crops. Such soils have properties that are favorable for the economic production of sustained high yields of crops. Prime farmland soils produce the highest yields with minimal inputs of energy and economic resources. Farming these soils results in the least damage to the environment.

Prime farmland is also the easiest and least costly to develop for non-agricultural uses. Urbanization and other land uses have the potential to consume significant areas of prime farmland. Decisions need to be made at the local level to encourage wise use of agricultural lands.

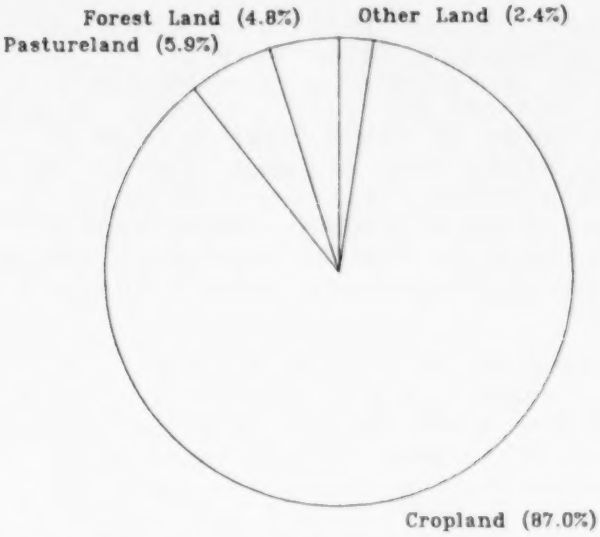
Clinton County has about 176,000 acres of prime farmland with all of it in Capability Classes I, II, and III.

Table 3. Prime Farmland by Rural Land Use

LAND USE	TOTAL ACRES	PRIME FARMLAND	
		Acres	Percent
Cropland	194,100	152,900	79
Pastureland	16,000	10,300	64
Forest Land	28,800	8,400	29
Other Land	7,700	4,200	55
TOTAL	246,600	175,800	71

Most of the prime farmland in the county is currently cropland. Figure 2 illustrates the uses of prime farmland.

Figure 2. Use Of Prime Farmland



KEY POINTS:

o Eighty-seven percent of all prime farmland is cropland.

Soil Erosion

Soil erosion is a continuously occurring natural process that loosens and transports soil particles. Erosion occurs slowly on undisturbed forest land and areas with adequate permanent vegetative cover. Soil losses are quite high on sloping cropland that is continually cultivated and left unprotected during several months every year.

Over 1,120,000 tons of topsoil erode on Clinton County agricultural land annually. Over 93 percent of the erosion is on cropland.

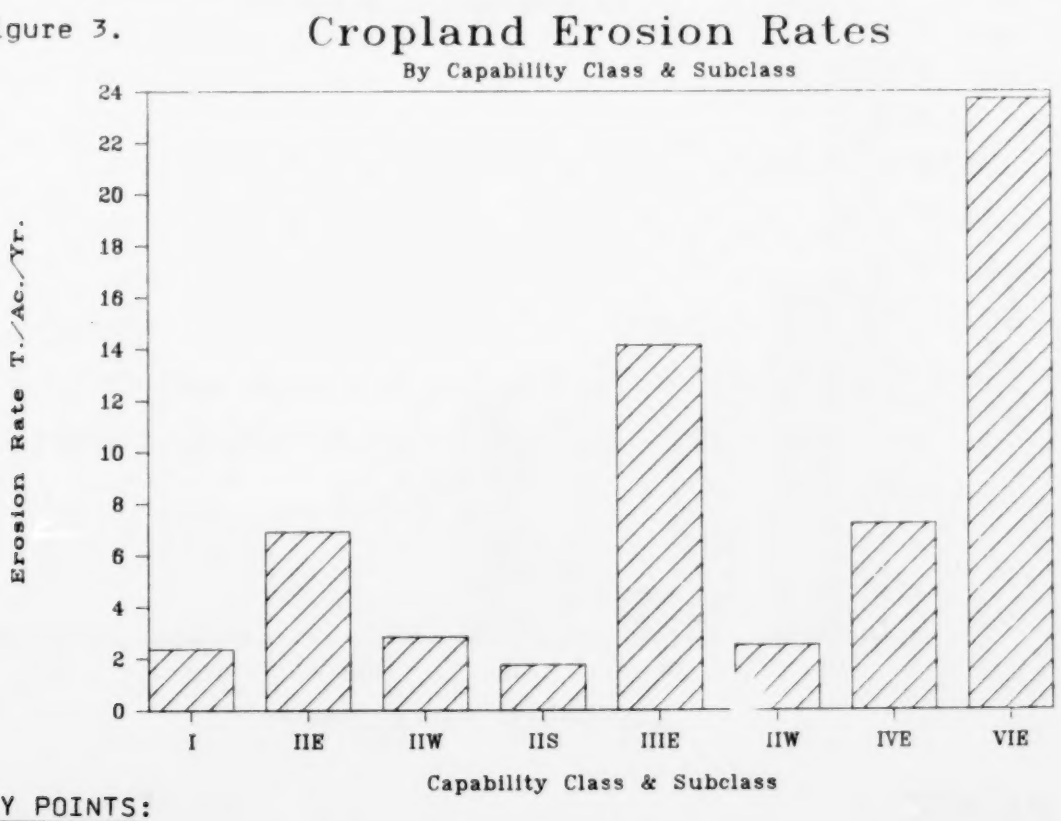
Table 4. Annual Soil Erosion by Agricultural Land Use

LAND USE	ACRES	TONS	TONS/ACRE
Cropland	194,100	1,045,900	5.4
Pastureland	16,000	22,900	1.4
Grazed Forest Land	3,700	45,600	12.3
Ungrazed Forest Land	25,100	6,500	0.3
TOTAL	238,900	1,120,900	
AVERAGE			4.7

Table 5. Erosion on Cropland by Capability Class and Subclass

CLASS AND SUBCLASS	ACRES	TONS	TONS/ACRE
I	2,400	5,700	2.4
IIe	64,700	447,800	6.9
IIw	93,100	264,900	2.9
IIs	400	700	1.8
IIIe	18,300	258,500	14.1
IIIw	12,300	30,900	2.5
IVe	1,900	13,700	7.2
VIe	1,000	23,700	23.7
TOTAL	194,100	1,045,900	
AVERAGE			5.4

Figure 3.



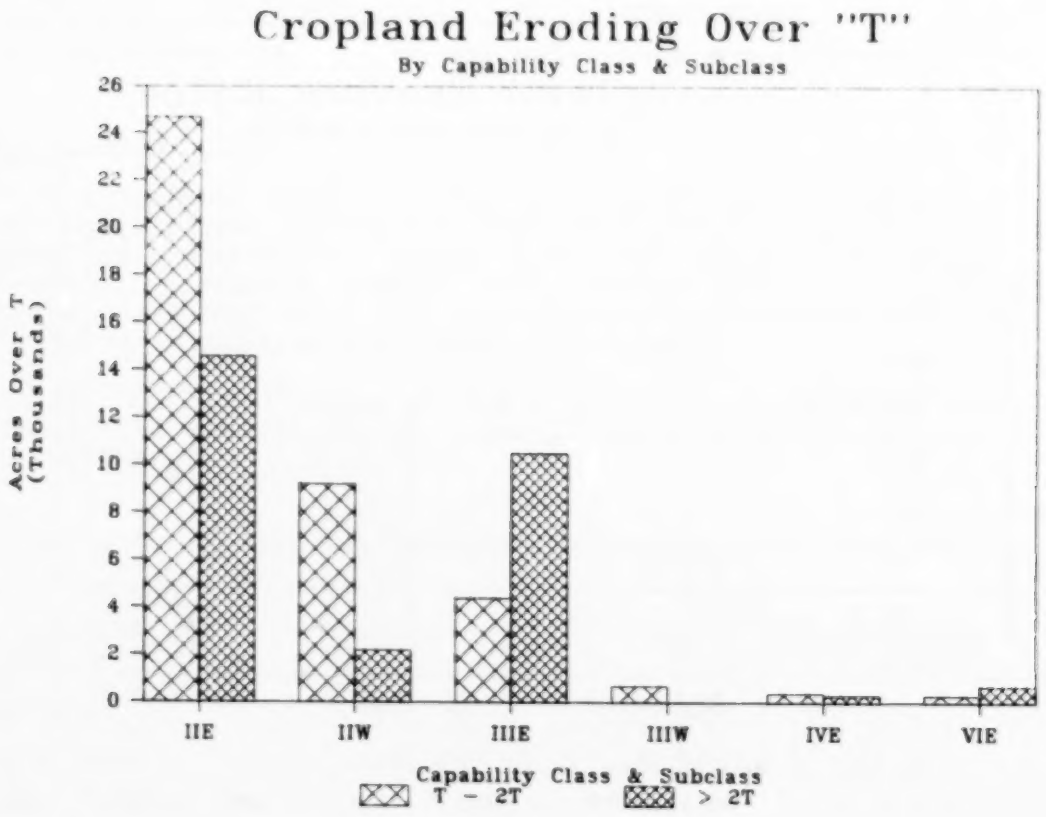
KEY POINTS:

- Sixty-seven percent of all cropland erosion is on IIe and IIIe soils (43 percent of the total cropland).
- VIe soils have an extremely high erosion rate, but acreage is limited in the county.

Soil can tolerate small amounts of erosion and remain productive for agriculture. When erosion is above this tolerable limit, the soil resource base cannot be maintained and the future ability of the soil to produce crops is threatened. The tolerable soil loss ("T") ranges from three to five tons per acre per year, with most of the soils in Clinton County having a "T" of five.

Sixty-eight thousand acres of cropland are eroding at rates greater than "T". There are 28,300 acres in the county eroding at rates greater than two times "T". These acres represent a serious threat to the productive capacity of the soil resource base.

Figure 4.



KEY NOTES:

- o Sixty-eight thousand acres of cropland are eroding over "T".
- o Over 28,000 acres of cropland are eroding over "2T".

Cropland is located on the better soils in the county (see Tables 2 and 3). One out of every three of these highly productive cropland acres is eroding excessively.

Table 6. Cropland in Relation to "T" by Capability Class and Subclass

CAPABILITY CLASS	TOTAL	LESS THAN "T"	"T" - "2T"	GREATER THAN "2T"
	ACRES			
I	2,400	2,400	0	0
IIe	64,700	25,400	24,700	14,600
IIw	93,100	81,700	9,200	2,200
IIs	400	400	0	0
IIIe	18,300	3,400	4,400	10,500
IIIw	12,300	11,600	700	0
IVe	1,900	1,200	400	300
VIe	1,000	0	300	700
TOTAL	194,100	126,100	39,700	28,300

KEY POINTS:

- o Thirty-five percent of all cropland is eroding over "T".
- o Fifteen percent of all cropland is eroding over "2T".

Conservation Treatment Needs

Many acres of Clinton County agricultural land need one or more different types of conservation treatment to either protect or improve soil and water resources. The different conservation practices used to accomplish these objectives vary by land use.

Cropland treatment usually involves practices like conservation cropping systems, conservation tillage, grassed waterway, grade stabilization structure, subsurface drainage, and open ditch construction. Improving water quality is accomplished by installation of animal waste storage pond and management systems.

Conservation practices to protect forest land include livestock exclusion, timber stand improvement and tree planting. Areas that are critically eroding can be seeded to grasses and legumes to control erosion. Land designated as adequately protected is properly managed for production and protected from excessive erosion.

Table 7. Conservation Treatment Needs and Percent by Land Use

LAND USE	TOTAL ACRES	TOTAL ACRES NEEDING TREATMENT	% TOTAL ACRES NEEDING TREATMENT
Cropland	194,100	116,600	60
Pastureland	16,000	8,700	54
Forest Land	28,800	22,700	79
Other Land	7,700	2,000	26
TOTAL	246,600	150,000	61

SUMMARY

Agriculture accounts for 92 percent of Clinton County land use with 75 percent used as cropland. About 68 percent of Clinton County is prime farmland and most of it is cropland.

Serious erosion problems exist on cropland. Thirty-five percent of all cropland is losing soil at excessive rates. Three-fourths of this cropland losing soil at excessive rates is prime farmland. Productivity will be reduced if erosion is allowed to continue at these high rates.

Conservation treatment is needed to conserve the resource base or increase productivity on over 60 percent of all agricultural land.

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SOIL CONSERVATION SERVICE